IN THE CLAIMS

Please cancel claims 9, 13 and 26 without prejudice.

Presented below are the amended claims in a clean-unmarked format.

1. (Amended) A method of forming interconnect, comprising:

forming a dielectric layer over a substrate, the dielectric layer having trenches therein;

forming a barrier in the trenches and on a top surface of the dielectric layer;

depositing metal over the barrier; and

polishing the metal with a slurry that includes an abrasive harder than the metal and less hard than the barrier and wherein said abrasive comprises one or more materials selected from the group consisting of strontium titanate, apatite, dioptase, iron, brass, fluorite, and azurite.

2. The method of Claim 1, wherein the dielectric layer comprises an oxide of silicon, and the barrier is electrically conductive.

3. The method of Claim 1, wherein the dielectric layer comprises a fluorinated oxide of silicon, and the barrier is selected from the group consisting of tantalum, and tantalum nitride.

4. The method of Claim 1, wherein the abrasive has a Moh's hardness between approximately 3.5 and 6.

5. The method of Claim 4, wherein the slurry has a pH between approximately 3.5 and 7.

6. The method of Claim 4, wherein the slurry contains approximately 0.5% to 10% by weight of the abrasive.

7. The method of Claim 1, wherein the slurry contains an oxidizer comprising H_2O_2.

8. The method of Claim 1, wherein polishing comprises chemical mechanical polishing.

9. Canceled

10. The method of Claim 9, wherein the slurry has a pH in the range of 3.5 to 7.

11. (Amended) A method of polishing a first film overlying a second film wherein the second film is harder than the first film, comprising:

polishing the first film with a slurry comprising an abrasive having a hardness greater than a hardness of the first film and less than the hardness of the second film and wherein said abrasive comprises one or more materials selected from the group consisting of strontium titanate, apatite, dioptase, iron, brass, fluorite, and azurite.

12. The method of Claim 11, wherein the first film comprises copper and the second film is comprises a material selected from the group consisting of tantalum and tantalum nitride.

13. Canceled

14. The method of Claim 13, wherein the abrasive comprises approximately 0.5 to 10 wt.% of the slurry.

15. A slurry, comprising:

an oxidizer;

a corrosion inhibitor;

a buffer system; and

an abrasive;

wherein the slurry is characterized by providing a high Cu polish rate, a low Cu etch rate, and a high selectivity to a Cu diffusion barrier when used for chemical mechanical polishing.

16. The slurry of Claim 15, wherein the Cu diffusion barrier comprises Ta.

17. The slurry of Claim 15, wherein the Cu diffusion barrier comprises TaN.

18. The slurry of Claim 15, wherein the abrasive is harder than Cu and less hard than the Cu diffusion barrier.

A3

19. A slurry, comprising:

an oxidizer; a corrosion inhibitor; a buffer system; and an abrasive; wherein the abrasive is harder than a Cu diffusion barrier, and less hard than a dielectric material.

20. The slurry of Claim 19, wherein the Cu diffusion barrier comprises a material selected from the group consisting of Ta and TaN; and the dielectric material comprises a material selected from SiO_2 and SiOF.

21. A slurry, comprising:

an oxidizer; a corrosion inhibitor; a buffer system; and an abrasive; wherein the abrasive is harder than Cu, and less hard than a Cu diffusion barrier, and less hard than a dielectric material.

22. The slurry of Claim 21, wherein the Cu diffusion barrier comprises a material selected from the group consisting of Ta and TaN; and the dielectric material comprises a material selected from the group consisting of SiO_2 and SiOF.

23. The slurry of Claim 22, wherein the abrasive comprises hydrated iron oxide.

24. (Amended) A method of forming a damascene structure, comprising:

forming trenches in an insulating layer disposed on a substrate, the trenches having a bottom surface and side surfaces;

forming a barrier layer over a top surface of the insulating layer and over the bottom and side surfaces, the barrier layer having a first hardness;

forming a layer of metal over the barrier layer; and

removing the metal layer from over the that portion of the barrier layer that overlies the top surface of the insulating layer;

wherein removing the metal layer comprises polishing the metal with a slurry having an abrasive that is harder than the metal and less hard than the barrier layer and wherein said abrasive comprises one or more materials selected from the group consisting of strontium titanate, apatite, dioptase, iron, brass, fluorite, and azurite.

25. The method of Claim 24, wherein the metal comprises copper, the barrier layer comprises tantalum nitride, and the dielectric layer comprises a fluorinated oxide of silicon; and further comprising removing the barrier layer by polishing with the slurry.

26. Canceled

27. A slurry for polishing copper overlying a barrier layer, comprising:

water;

hydrogen peroxide;

a corrosion inhibitor;

a pH buffer; and

an abrasive;

wherein the abrasive has a hardness between hardness of copper and a hardness of the barrier layer.

28. The slurry of Claim 27, wherein hydrogen peroxide comprises 2 to 4 wt. % of the slurry; and the abrasive comprises 0.5 to 10 wt. % of the slurry.

29. The slurry of Claim 28, wherein the corrosion inhibitor comprises 0.015 to 0.045 M benzotriazole.

A4

30. The slurry of Claim 29, wherein the slurry has a pH in the range of approximately 3.5 to 7.

---

31. (New) A method of forming an interconnect comprising:

forming a hard dieletric layer over a substrate, the dielectric having trenches therein;

forming a barrier in the trenches and on top of the surface of the hard dielectric layer;

A5

depositing metal over the barrier;

polishing the metal with a slurry that includes an abrasive harder than the metal and less hard than the barrier; and

polishing said barrier from the top surface of said hard dielectric layer with said slurry.